

COMPANY

P. N. Shidhore Civil Engineers (I) Pvt. Ltd. (PNSCO)

LOCATION

Mumbai, India.

SOFTWARE

**Autodesk® AutoCAD® Civil 3D®
Autodesk® InfraWorks® 360**

AutoCAD® Civil 3D - At the heart of mega-structures in India

Landmark infrastructure projects stand evidence of the promise of excellence using AutoCAD® Civil 3D® civil.

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Director

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Image Courtesy: P. N. Shidhore Civil Engineers (I) Pvt. Ltd

Deep rooted in Civil Engineering and founded in 1978, P. N. Shidhore Civil Engineers (I) Pvt. Ltd (PNSCO) located in Mumbai, India has been an engineering partner for several mega infrastructure projects across India. A renowned name in Civil Engineering, Topography Surveys, Geotechnical Investigation and Transportation Engineering Services, it caters to the needs of the government, semi-government and private organisations. Delivering reliable information and successful completion of projects has always been their motto.

The company has provided its services for numerous prestigious projects which include the civil engineering marvel – the Bandra-Worli Sea Link, the first cable stayed bridge in India. There are similar large scale infrastructure projects of roadways, railways and airport across major cities and geographically difficult terrains of India where the company has proved its might.

Challenges

It is usually a tight-rope walk for civil engineering consultants to meet the productivity timelines and keep pace with new iterations of the engineering designs on the go.

The need to conform to stringent deliverable guidelines of two prestigious projects – one an artificial lake & a popular tourist destination of Mumbai – The Powai Lake and the second a multimodal freight connectivity corridor by leading corporate conglomerate Jindal

Steel Works (JSW) Group required robust civil engineering software that could perform not just basic tool but also have additional customisation capabilities to meet project deliverables. Both were challenging projects that required easy alteration of designs, accuracy, data analysis and customisation.

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The dynamic ecological conditions in a lake and complex topographical parameters of the multimodal corridor required the customer interface to have the ability to actively customise and configure the command properties. Task based interface support was also required. The impact of a visual display of the project is far greater than that of a two-dimensional drawing. The unique geotechnical and surveying data analysis and modelling of both the projects was apt to have 3D dimension display and visualise the projects to go beyond the clients’ expectations.

InfraWorks® 360 is ideal for mega structures and large scale infrastructure models.

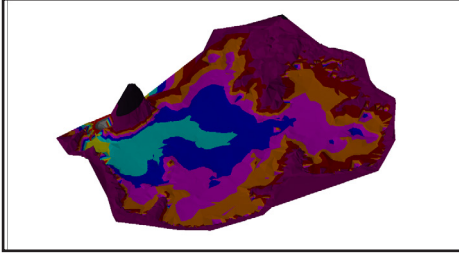


Image Courtesy: P. N. Shidhore Civil Engineers (I) Pvt. Ltd

AutoCAD® Civil 3D® - A visual delight

The use of AutoCAD® Civil 3D® civil engineering design and documentation software is apt to support Building Information Modelling (BIM) workflows and accelerate project delivery, maintain more consistent data and respond faster to iterations.

An artificial lake built in 1799 AD; the Powai Lake is situated at the heart of city and plays a key role in balancing the hydro-ecology of Mumbai. It has been under degradation and measure of lake restoration and de-silting has been regularly carried out. A prestigious project for its importance and ecological role, PNSCO was entrusted with the topographic survey, bathymetry and geotechnical investigation of the lake.

Autodesk IDSP was the technology partner and it helped in analysing and visualising the data collected from all the three different kinds of surveys, and presenting it to the client. AutoCAD® Civil 3D® software was used to create the bed surface of the lake and visualise depth of various regions across the lake using various styles and colour coding. The Geotechnical data was incorporated in the drawing using Geotechnical Extension of Civil 3D. The quantity of water in the lake and an estimation of volume of sediments were also found out and reports were made using volumes dashboard utility.

“With Civil 3D® we could easily create 3D models of the lake bed and help the client visualise the lake bed profile and additional sediment layers. We presented the data layers in 3D and also gave it different colours. Thus, enhancing the entire model and giving exceptional insights for our client,” explained Shidhore.

InfraWorks® 360 – speed and intelligence

India is one of the fastest growing economies of the world and infrastructure projects to support transportation and freight needs have been put on priority to meet the growing demands of connectivity.

PNSCO is focused on transportation and infrastructure projects especially for the government sector that has several technology and data standards laid down. The power of InfraWorks® 360 software drives performance and intelligence into transportation planning design software and helped them deliver excellence even in the most demanding infrastructure projects.

InfraWorks® 360 is ideal for mega structures and large scale infrastructure models. It was the first choice for PNSCO when they bagged the mega project of Preparing Detailed Project Report of Road and Rail Connectivity to the Greenfield all-weather multi-cargo port proposed at Tarapur, Maharashtra. A JSW Group project, the multi cargo port is expected to handle up to 75 million tonnes by the end of 30 year period. The proposed connectivity corridor was multimodal in nature with intersecting proposed roadways, railways and port facilities which required detailed accurate survey.

“We had completed the alignment profile; 3D visualisation was the next step that could be easily done in the software to give some value addition to the client. We didn’t just create a drawing and submit, but we could actually help them visualise how the alignment will look like, the obstacles, the crossing and overlap areas among others. Infraworks was the best that happened to us in terms of project presentation and visualization,” said Shidhore.

Key Benefits

Civil engineering has largely used 2D technology in India, thus most of time the requirements that PNSCO engineering consultancy receives is largely CAD drawings. The power of 3D comes as an exciting dimension for the client wherein they can actually understand the look and feel of the data layers and even the final project and provide real time feedback.

“Client delight is guaranteed with 3D feature representation but it largely depends on the imagination and out-of-the-box thinking of the consultants that surprises the clients with their insights. It is easy to customise data points and add features. So it gives us a lot of flexibility to customize and present exclusive information on the project. The popular use and know-how of AutoCAD in India helps us when it comes to manpower training and it is an easy transition of their knowledge and skills to make the most of AutoCAD® Civil 3D® and InfraWorks® 360 on projects. The learning curve is smaller which makes the software user-friendly. This not only helps us get intelligent data but also helps in adhering to the time lines,” explained Shidhore.

The Result

- Creation of lake bed surface of the lake and visualization of depth of various regions across the lake using various available styles and colour coding
- Geotechnical data was incorporated in the drawing using Geotechnical Extension of Civil 3D
- Estimation of Lake water level and volume of sediments found and reports made using volumes dashboard utility
- Large and complex infrastructure project with multiple data points that need accuracy and visualization in a realistic environment can be done with ease with InfraWorks®
- Navigation and extrapolation of geotechnical data for additional information is easier, faster and accurate with InfraWorks®
- Commitment towards hand-holding and after sales service ensures users are updated with new features and problems resolution is prompt by the Autodesk team

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